TMG **Trimethylglycine**	Product Name: **TMG Trimethylglycine**
	Item Number: 047302
	Serving Size: 1 tablet
	750 mg per serving
	120 tablets
	Price: $11.70
	Add To Cart View Cart Check Out Go to Shopping List Shipping Information Order by Phone

TMG 750 contains Trimethylglycine (TMG, also known as anhydrous betaine), a highly effective methyl donor extracted from sugar beets. Methyl donors, such as TMG and folic acid, are required for the reduction of homocysteine back into methionine and for the accurate synthesis of DNA and RNA, which is essential for the production of normal cells. **Methylation** is inhibited by inadequately functioning key enzymes, excessive protein and fat intake, poor diet, inadequate intake of methyl groups, coffee, alcohol or by smoking. Impairment of methylation results in abnormal cell synthesis and elevated levels of homocysteine, a toxic amino acid and a serious health risk.

Supplement Facts	
Amount in One (1) Tablet	
Trimethylglycine (Anhydrous Betaine)	750 mg
Calcium	60 mg
Other ingredients: Dibasic calcium phosphate, stearic acid, microcrystalline cellulose, modified cellulose gum, magnesium stearate, and colloidal silicon dioxide.	

TED PELLA, INC.
Microscopy Products for Science and Industry
Home Page

Material Safety Data Sheet

Prod. No. 18315 DMAE, Dimethylaminoethanol
Issue Date (03-29-99)

Section 1: Product and Company Identification

Product Name: Dimethylaminoethanol
CAS Number: 108-01-0
Synonyms: Dimethylethanolamine, DMAE, DMEA, Epoxy Curing Agent S-1
Chemical Name: Ethanol, 2-(Dimethylamino)
Molecular Formula: $(CH_3)_2N(CH_2CH_2OH)$
Chemical Family: Alkyl Alkanol Amines

Company Name
Ted Pella, Inc. and PELCO International, P.O. Box 492477, Redding, CA 96049-2477
Domestic Phone (800) 237-3526 (Mon-Thu. 6:00AM to 4:30PM PST; Fri 6:00AM to 4:00PM PST)
International Phone (01) (530) 243-2200 (Mon-Thu. 6:00AM to 4:30PM PST; Fri 6:00AM to 4:00PM PST)
Chemtrec Emergency Number 1-800-424-9300 24 hrs a day.

Section 2 Ingredients

Component: Dimethylaminoethanol %: 99.0
Comments: OSHA: Corrosive
NFPA: 2-2-0
Shipping Information: Corrosive Material, UN 2051

Section 3 Physical Data

Boiling Point/Range: 130-137°C (266-279°F)
Melting Point: NA
Freezing Point: -59°C (-74°F)
Molecular Weight: 89.1
Specific Gravity (H_2O=1): 0.88 - 0.89 at 20°C (68°F)
Vapor Pressure (mm Hg): 4 H @ 20°C (68°F)
Vapor Density (Air=1): 3.1
Solubility in water: Complete (miscible)
% Volatiles by Volume: 100%
Appearance and Odor: Clear, colorless liquid with ammonia-like odor

Section 4 Fire and Explosion Hazard Data

Flash Point: 40°C (104°F) TAG CC
Flammable Limits: Lower: NE; Upper: NE

Td	tetrahedral
Tf	triflate
THF	tetrahydrofuran
tht	tetrahydrothiophene
TLV	Threshold Limit Value
TMED	tetramethylethylenediamine
tpp	tetraphenylporphyrinato
triphos	triphosphine (generalised ligand)
Ts	tosyl
?$_{eff}$	effective magnetic moment (in Bohr magnetons ?B)
unsatd.	unsaturated
USAN	United States Adopted Name
uv	ultraviolet spectrum
v.	very
var.	variety
vis.	visible
vol.	volume
w	weak
WSSA	Weed Science Society of America
X	eneralised anion, usually halide

Reference Tags

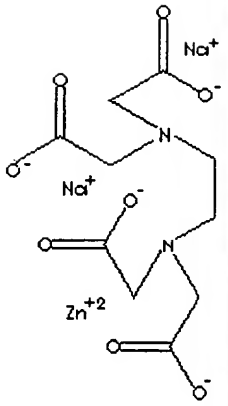
The following is a selection of the most common Reference Tags used.

Abbreviation	**Name**
abs config	absolute configuration
anal	analysis
bibl	bibliography
biodistribn	biodistribution
biosynth	biosynthesis
cd	circular dichroism
chromatog	chromatography
cmr	13C nuclear magnetic resonance spectrum
config	configuration
conformn	conformation
cryst struct	X-ray crystal structure determination
deriv(s)	derivative(s)
detn	determination, detection
dsc	differential scanning calorimetry
dta	differential thermal analysis
ed	electron diffraction
electrochem	electrochemistry, cyclic voltammetry
em	electronmicroscopy
epr	electronparamagnetic (spin) resonance spectrum
esca	electronspectroscopy for chemical analysis

EDTA, ZINC DISODIUM

PRODUCT IDENTIFICATION

CAS NO.	14025-21-9
EINECS NO.	
FORMULA	$C_{10}H_{12}ZnN_2Na_2O_8$
MOL WT.	399.59
H.S. CODE	
TOXICITY	Oral rat LD50: 5000 mg/kg
SYNONYMS	EDTA, Zinc derivative, disodium salt; Ethylenediaminetetraacetic Acid Disodium Zinc Salt ; Zn(II)-EDTA; Ethylenediaminetetraacetic acid, Zincate(II) disodium salt;



DERIVATION

CLASSIFICATION

GENERAL DESCRIPTION OF CHELATING AGENT

Chelation is a chemical combination with a metal in complexes in which the metal is part of a ring. Organic ligand is called chelator or chelating agent, the chelate is a metal complex. The larger number of ring closures to a metal atom is the more stable the compound. This phenomenon is called the chelate effect; it is generally attributed to an increase in the thermodynamic quantity called entropy that accompanies chelation. The stability of a chelate is also related to the number of atoms in the chelate ring. Monodentate ligands which have one coordinating atom like H_2O or NH_3 are easily broken apart by other chemical processes, whereas polydentate chelators, donating multiple binds to metal ion, provide more stable complexes. Chlorophyll, green plant pigment, is a chelate that consists of a central magnesium atom joined with four complex chelating agent (pyrrole ring). The molecular structure of the chlorophyll is similar to that of the heme bound to proteins to form hemoglobin, except that the latter contains iron(II) ion in the center of the porphyrin. Heme is an iron chelate. Chelation is applied in metal complex chemistry, organic and inorganic chemistry, biochemistry, and environment protection. It is used in chemotherapeutic treatments for metal poisoning. Chelating agents offers a wide range of sequestrants to control metal ions in aqueous systems. By forming stable water soluble complexes with multivalent metal ions, chelating agents prevent undesired interaction by blocking normal reactivity of metal ions. EDTA, ethylenediaminetetraacetate (hexadentating), is a good example of common chelating agent which have nitrogen atoms and short chain carboxylic groups. The sodium salt of EDTA is used as an antidote for metal poisoning, an anticoagulant, and an ingredient in a variety of detergents. Chelating agents are important in the field of soap, detergents, textile dyeing, water softening, metal finishing and plating, pulp and paper, enzyme deactivation, photo chemistry, and bacteriocides.

PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE	white powder
MELTING POINT	
BOILING POINT	

Tris Buffers – What electrodes can I use?

TRIS buffers are used by biochemists to control pH in the physiological range (about 7 to 8 pH) because phosphates cause undesirable side reactions with the biological substances in their test samples.

However, when pH measurements are to be made on these solutions, another type of "undesirable side reaction", involving the pH electrode system, must be recognized. The common Silver-Silver Chloride reference electrode used with most combination pH electrodes has a Potassium Chloride salt-bridge which is saturated with Silver Chloride. This salt-bridge system works well in most samples, but not in biological samples containing proteins or related materials. The quite low concentration of Silver ion (about 0.0001 M) is sufficient to react with proteins and produce an insoluble precipitate in the porous liquid junction structure of the electrode and thus cause errors in pH measurement due to the development of substantial "liquid junction" potentials across this plug of precipitate.

This problem can be avoided quite simply by using an electrode with a calomel reference internal element, or a "double-junction" design. Either reference internal cell is contained in its own glass tube structure within the salt-bridge, and the Potassium Chloride solution does not contain heavy metals. Thus, none of the undesirable precipitates form, the reference junction remains unplugged, and the liquid junction potential remains negligable.

Dr. John E. Leonard, Broadley-James Corporation

10/81

Accurate pH Measurements in Tris Buffer Solutions

Introduction

Tris, or tris (hydroxymethyl) aminomethane, has been widely used as a pH buffer in biological media for approximately thirty-five years. The almost ideal characteristics of this physiological buffer account for its popularity. Tris is not hydroscopic is easily dissolved in water, and is available in high purity. It does not precipitate calcium salts, is stable in solution at room temperature for months, and does not appear to inhibit many enzyme systems. During the late '60s, it was reported that incorrect pH readings were obtained when the reference electrode used to measure the pH of tris had a linen fiber liquid junction. This problem, though easily eliminated, has raised a number of questions concerning the proper reference for use with tris buffers. Additionally, because of the chemical and physical properties of tris buffers, improper use may lead to erroneous pH measurements. The purpose of this bulletin is to point out the possible sources of error and to recommend the most appropriate electrode system for pH measurement when tris buffers are used.

Effect of Chemical & Physical Properties of Tris Buffers on pH

Table I contains compositions, buffer values, dilution values, and an approximate temperature coefficient of tris buffer over its practical buffer range (pH 7 to 9). The data in Table I indicates that tris in the pH

MATERIAL SAFETY DATA SHEET
Tris Buffer

Date of Issue: February 2003

STATEMENT OF HAZARDOUS NATURE

Not classified as hazardous according to criteria of Worksafe Australia

COMPANY DETAILS

Company:	**ProSciTech**
Address:	PO Box 111, Thuringowa Central Qld. 4817 Australia
Street Address:	1/11 Carlton Street, Kirwan, Qld, 4817. Australia
Telephone Number:	(07) 4773 9444
Fax Number:	(07) 4773 2244

IDENTIFICATION SECTION

Product Name	Tris (Buffer)
Other Names	Tris Hydroxymethylaminoethane; Trisamine
Product Code	C021, C0215
U.N. Number	None allocated
Dangerous Goods Class and Subsidiary Risk	None allocated
Hazchem Code	None allocated
Poison Schedule	None allocated
Use	Buffering compound

Physical Description and Properties

Appearance	Odourless white crystalline solid
Boiling Point/Melting Point	mp 172°C
Vapour Pressure	No data
Specific Gravity	No data
Flash Point	No data
Flammability Limits	Not determined
Solubility in water	>100g/L

Other Properties

Ingredients

Chemical Name	CAS Number	Proportion
$NH_2C(CH_2OH)_3$	00077-86-1	100%

BES [N,N-bis(2-Hydroxyethyl)-2-aminoethanesulfonic acid]

Cat No. B1514

$C_6H_{15}NO_5S$
MW 213.2

CAS No. 10191-18-1
Purity >99%. pKA (25°C): 7.1 pH range: 6.4-7.8. Heavy Metals: <0.0005%.
Soluble in water. Store at room temperature.

Quantity	Price	
25 gm	20.25	Add to Cart
100 gm	57.00	Add to Cart
250 gm	129.00	Add to Cart

back

Resistivity probing of multi-layered tissue phantoms using microelectrodes

Pontus Linderholm *et al* 2004 *Physiol. Meas.* **25** 645-658 doi:10.1088/0967-3334/25/3/005

Pontus Linderholm, Arnaud Bertsch and Philippe Renaud
Laboratory of Microsystems, EPFL, CH-1015 Lausanne, Switzerland
E-mail: pontus.linderholm@epfl.ch

Abstract. We present the use of an array of rectangular microelectrodes to discriminate between different resistivities in a thin, layered sample. Each electrode was 8 mm long and 200 nm thick. The electrode widths ranged from 20 to 500 μm. The electrodes were designed such that all pairs of consecutive electrodes had the same relative geometry, and therefore identical cell constants. A hydrogel-based tissue phantom, made by photopolymerization of 2-hydroxyethyl methacrylate (HEMA), was developed. By changing the hydrogel composition and the ionic strength of the storage medium, the resistivity of the hydrogels could be tuned between 100 Ωm and 100 kΩm. Using bipolar measurements, the tissue phantoms were characterized in the frequency range from 100 Hz to 30 MHz. The relative resistivity distribution of a three-layered structure composed of 120 μm sheets could be calculated and was shown to agree to within 7% of the bulk measurements. Potential clinical applications for this technique include probing of epithelial tissue and skin cancer screening.

Keywords: BioMEMS, impedance tomography, microelectrode, tissue phantom, pHEMA

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Received 18 December 2003, accepted for publication 8 April 2004
Published 5 May 2004

POLYVINYL ALCOHOL

MSDS Number: P5282 --- *Effective Date: 12/08/96*

1. Product Identification

Synonyms: Polyvinyl alcohol; PVA; Polyvinol; ethenol homopolymer
CAS No.: 9002-89-5
Molecular Weight: Not applicable to mixtures.
Chemical Formula: [-CH2CHOH-]n
Product Codes: U227, U228, U229, U232

2. Composition/Information on Ingredients

Ingredient	CAS No	Percent	Hazardous
Methyl Alcohol	67-56-1	< 1%	No
Polyvinyl Alcohol	9002-89-5	> 95%	Yes

3. Hazards Identification

Emergency Overview

CAUTION! MAY FORM COMBUSTIBLE DUST CONCENTRATIONS IN AIR. NUISANCE DUST.

J.T. Baker SAF-T-DATA(tm) Ratings (Provided here for your convenience)

Health Rating: 0 - None
Flammability Rating: 2 - Moderate